

Application No.: 10/627,245  
Amendment Dated: February 17, 2006  
Reply to Office Action of August 18, 2005

**Amendments to the Specification:**

Please replace paragraph [00044] with the following amended paragraph:

[00044] To characterize the types of cardiomyocytes in the EBs, we examined the shape and properties of action potentials from 105 stable impalements of 20 different EBs. At the time window of differentiation that we studied (40-95 days), there was clear heterogeneity in the morphology of the action potentials; however, the action potentials could be classified into 3 major types: nodal-like, embryonic atrial-like, and embryonic ventricular-like (Fig. Figs. 2, 3 and 4). This classification was based on the properties of the action potential as measured by the maximum rate of rise of the action potential ( $dV/dt_{max}$ ), the action potential duration (APD), action potential amplitude (APA), and prominence of phase 4 depolarization ~~as summarized in the Table~~. Nodal-like action potentials (Fig. 4) were characterized by prominent phase-4 depolarization, slow upstroke ( $dV/dt_{max}$ ), and a smaller APA. Embryonic ventricular-like action potentials (Fig. 2) could be distinguished by the presence of a significant plateau phase of the action potential resulting in a significantly longer duration compared to the more triangular shaped embryonic-atrial action potentials. In addition, embryonic ventricular-like action potentials generally showed a trend for slower spontaneous rates of activity the longer the EBs were maintained in culture from 40 to 95 days.